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SEQUENCE OF PASSERINE FAMILIES (AVES)

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At the XI International Ornithological Congress at Basel, Dr. Stresemann proposed that a committee be appointed which would recommend to the editors of ornithological journals a standardized sequence of the families of Passerine birds. Dr. Stresemann pointed out that some editors follow Hartert, others Sharpe's Handlist, others the sequence of the AOU, and still others the recently proposed sequence of Mayr and Amadon (1951). If a reader wants to find a given family in an article, he may have to look either at the beginning or in the middle or at the end depending on the particular sequence adopted by the respective editor.

As a result of Dr. Stresemann's suggestion a committee was appointed by the president of the Congress with the following members:

- Dr. G. C. A. Junge, Chairman
Rijksmuseum Nat. Hist., Leiden
- Prof. J. Berlioz
Museum d'Hist. Nat., Paris
- Prof. Dr. G. Dementiev
Zool. Mus. University, Moscow
- Prof. E. Mayr
Mus. Comp. Zool., Cambridge, (Mass.)
- Mr. R. E. Moreau
Edward Grey Institute, Oxford
- Dr. F. Salomonsen
Zool. Museum University, Copenhagen
- Prof. Dr. E. Stresemann
Zool. Museum University, Berlin

In the discussion, it was pointed out that more and more editors adopt the sequence of already published volumes of Peters' Checklist, and the editors of Peters' Checklist were requested to submit to the committee the sequence which they had been planning to use. Dr. Mayr expressed the views of the editors by saying that they would very much like to follow a standardized and universally adopted sequence, in view of the fact that there are no decisive arguments available in favor of any of the previously proposed sequences. He stated that the editors of Peters' Checklist would be willing to adopt whatever sequence the committee would vote for.

REPORT OF THE EDITORS OF PETERS' CHECKLIST

In order to facilitate the work of the appointed committee, the editors of Peters' Checklist submitted to that body some tabulated historical material on sequences adopted by earlier authors. In the introduction to this report the following subject matter was discussed:

The task of the student of avian classification is particularly difficult because too little is as yet known about the paleontology of the songbirds to be of help in devising a sound classification. It is evident for this and more basic reasons that any linear order must be arbitrary. Three considerations usually guide those who attempt to find a suitable sequence:

(A) To follow as closely as possible the traditional arrangements, except where subsequent work has shown conclusively that a change is advisable;

(B) To place families near each other which are presumably closely related;

(C) To place the more primitive families near the beginning and the more advanced families near the end.

The following comments may be made on these three principles.

(A) *Traditional arrangements.* In nearly all recently proposed sequences it is acknowledged that the larks and the swallows are aberrant in various ways. These two families are, therefore, usually disposed of at the beginning of the system. The remaining bulk of songbirds is usually grouped into three major assemblages: (1) Old World Insect-eaters and relatives (Campephagidae, Pycnonotidae, Sylviidae, Timaliidae, Turdidae, Muscicapidae,

dae, etc.), (2) New World Insect-eaters and finches, (3) crows, birds of paradise, and associated families. All the more peculiar and isolated families, as well as the Old World Nectar-eaters, are grouped rather irregularly within this broad framework. The sequence of the three major assemblages is by no means standardized, and to achieve a universal (or at least general) acceptance of one should be particularly the object of the committee.

The sequence 1, 2, 3 is that of Shufeldt (1904), Sharpe's Handlist, Hartert (in reverse here), the official Checklist of Australian Birds of 1926, Chasen's Handlist (1935), Mathews' Systema (1930), and more recently of the Checklist of Japanese Birds (1942), Berlioz (1950), Mayr and Amadon (1951) and Biswas (1952).

The sequence 1, 3, 2 was suggested first by Wallace (1874), as far as we can discover. This arrangement was based on the reduction in the number of primaries. As early as 1885 Sharpe remarked that it was difficult to follow it in a linear sequence. However, it was followed in certain sections of the Catalogue of Birds in the British Museum, but in others the arrangements of Sundevall (1872) and Garrod (1876) were adopted. We cannot find that the exact order of the "Catalogue of Birds" has been followed by anyone. This same order (1, 3, 2) was adopted by Stejneger in 1885. Evans (1899) used this order in the Cambridge Natural History, Selater used it in 1930, and Stresemann again in the Handbuch der Zoologie (1934).

Finally, the sequence 3, 1, 2 was adopted by Wetmore and Miller (1926), and has been the order used in the American Ornithologists' Union Checklist (1931) and in works following the A.O.U. Checklist.

It should be added parenthetically that neither Fuerbringer (1888) nor Gadow (1893, 1898) made any attempt to classify the Oscine Passeres into families or subfamilies.

(B) *Mutual relationship.* To determine exact interrelationships of these families is in many cases very difficult, if not impossible. The system of songbirds abounds in artificial aggregates such as the "finches" or the "shrikes" of old, groups which may have little in common, except, for instance, the shape of the bill. In the improvement of the grouping considerable progress has been made in recent years such as the breaking up

of the artificial assemblage "finches" into carduelines, buntings (Emberizidae) and cardinals, or the assembling of the vireos, wood warblers, tanagers, and related families into a single aggregate. There are still many conventional groupings such as Paridae - Sittidae - Certhiidae which are presumably quite artificial. Yet, it would serve no useful purpose to break up these well-known sequences, until additional information sheds new light on the relationship of these families.

(C) *Phylogenetic sequence.* A satisfactory classification into "primitive" or "specialized" families is virtually impossible for the exceedingly similar groups of songbirds. The convenience of placing the rather undifferentiated "Old World Insect-eaters," and particularly the very generalized Campephagidae and Pycnonotidae near the beginning, is now accepted by the great majority of classifiers. But whether to follow the sequence 1, 2, 3, or 1, 3, 2—that is, whether to consider the finches or the crow and bird-of-paradise group relatively more specialized—depends entirely on the criteria used. If adaptation to a seed diet or loss of the tenth primary are considered characters of great importance, then the sequence 1, 3, 2 is certainly best. However, if the cerebralization of the Corvidae and the extraordinary courtship habits of the birds of paradise and bower birds are considered indications of evolutionary significance among songbirds, then the sequence 1, 2, 3 is to be preferred.

The recent realization that the cone-billed birds ("finches") form an artificial, polyphyletic assemblage has weakened the support for sequence 1, 3, 2. Not only should the true finches (including Carduelinae) be removed from the New World Emberizidae-Cardinalinae assemblage (Tordoff 1954) but likewise the Estrildidae should be removed from the Ploceidae (Steiner 1955). Possibly the Estrildidae are related to the cardueline finches, both groups showing a curious mixture of primitive and advanced characters. The loss of the outermost primary which has happened in many families of birds independently and irregularly is, like all loss-characters, a very unsafe taxonomic criterion. All this militates against the sequence 1, 3, 2.

However, weighty arguments can also be advanced against the sequence 1, 2, 3. To consider cerebralization a most important character (Portmann) is somewhat anthropomorphic, as Wetmore (1951) has rightly observed. Furthermore, high cerebral-

ization has also occurred among Non-Passerres (Psittaci), and the relationship Corvidae-Paradisaeidae-Ptilonorhynchidae is by no means unequivocally established. In many purely morphological respects (bill, wing) the families of this group are undoubtedly more generalized than are some of the finches, and particularly the nectar-eating birds.

There is, thus, no decisive criterion that would permit coming to an unequivocal conclusion. It should be added that it would be shortsighted to accept a sequence which would satisfy European and American ornithologists only, but not those in the remainder of the world. The placement of the birds of paradise and bower birds may be immaterial to the student of European or of North American birds, but no world list of birds can be prepared which does not pay as much attention to the classification of these families as to that of the finches or thrushes.

It appears to the editors of Peters' Checklist that the 1, 2, 3 sequence is the one most widely used in the ornithological literature of the world. Since they know of no decisive reason for changing it, they have adopted a sequence which agrees roughly with the order 1, 2, 3.

ACTIONS OF THE COMMITTEE

The editors of Peters' Checklist requested that the members of the Committee express their preference between the sequences 1, 2, 3 and 1, 3, 2 and 3, 1, 2, and they used this opportunity to ask for suggestions concerning the placement of individual families.

The result was that the members of the Committee (Berlioz, Dementiev, Junge, Mayr, Moreau, Salomonsen, and Stresemann) voted unanimously in favor of the sequence 1, 2, 3. They also submitted questions concerning the family rank of certain genera and groups of genera and suggested a number of modifications. Before these are discussed, two matters of policy, which will guide the editors of Peters' Checklist, may be stated.

(A) There are a number of natural groups among the Oscines such as the thrush-flycatcher group, the "New World finches," and others delineated in Mayr and Amadon, 1951. In a linear listing unrelated groups of families must often of necessity be placed next to one another. This does not imply that such adjacent families are considered related, but is merely the un-

avoidable consequence of having to present a three-dimensional phylogenetic tree cut up into a one-dimensional linear sequence. As a result the Bombycillidae, for instance, are found next to the Cinclidae, the Pachycephalinae next to the Paridae, the Meliphagidae next to the Emberizinae, etc. Family group headings will be used in Peters' Checklist in order to minimize the effect of such misleading, but unavoidable groupings.

(B) The editors consider it unwise in such an essentially uniform group as the Oscines to recognize many families containing only a single species. They prefer to place somewhat isolated species in separate subfamilies, near the families with which the genera are traditionally associated. This they intend to do for such genera as *Hypositta*, *Dulus*, and *Pityriasis*. There are many additional genera of songbirds which could be treated with equal justification as separate families, such as *Lamprolia*, *Tichodroma*, *Promerops*, and others. Such a multiplication of families would not be constructive in the absence of sound anatomical support for the splitting.

The following comments concern the placing of individual families and deal with questions raised by committee members.

1. *Alaudidae*. Should this family, currently listed near the beginning of the Oscines, be transferred nearer to the Emberizidae, a position which it held in some of the older classifications?

Answer: This is not advisable. The Alaudidae are a very peculiar family. They differ from all other Acromyiodean Passeres by having not only the front but also the back of the tarsus scutellate and in having the pectus rudimentary. This indicates that the larks may not be closely related to any of the other families. Since they are not specialized to any great extent they are probably best placed near the head of the list. Two functional characters, the heavy bill in some of the seed-eating genera, and the reduction in the number of primaries, cannot be considered evidence for relationship to the finches.

2. *Grallinidae* and *Artamidae*. Should these families be transferred from a place near the Laniidae to the neighborhood of the Callaeidae?

Answer: Yes. It is advisable for two reasons to keep together all peculiar Australian families, the relationship of which is obscure. It is probable that these families had their origin in the Australian region and that they are distantly related. It is also

desirable for purely practical reasons to have all purely Australian families near each other. In view of a superficial similarity, it was once believed that the Artamidae might be related to the Vangidae. However, there is no anatomical evidence available in favor of such an association and much zoogeographical and biological evidence which contradicts it.

3. *Bombycillidae*. Should this family be transferred from a position near the Sturnidae to one nearer to the Laniidae?

Answer: Yes. The Bombycillidae are presumably more closely related to some of the families in group 1 than to those in group 3.

4. *Ptilogonatidae* and *Dulidae*. Should not these two groups be retained as families?

Answer: They are better placed as subfamilies for the reasons stated above under B.

5. *Pityriasis*. Does the inclusion of this genus in the Prionopidae reflect true relationship?

Answer: Perhaps not, but with the available evidence it is not possible at present to make a satisfactory decision on relationship. There is no support for the belief that it might be related either to the Starlings or to the Shrikes (in the restricted sense). Since it is not advisable for the reasons stated above under B to separate the genus in a monospecific family, it will be best to list it as a subfamily in the Prionopidae where the genus has been listed traditionally.

6. *Estrildidae*. Should they be combined with the Ploceidae or be treated as a separate family?

Answer: Steiner (1955) has listed much evidence indicating that the Estrildidae deserve family ranking, indeed that they may not even be closely related to the Ploceidae.

7. *Turdidae*, *Sylviidae*, *Muscicapidae*, *Fringillidae*, *Ploceidae*, *Emberizidae*. Should not all these be retained as families?

Answer: For the reasons stated by Hartert, the first three should be combined in a single family. Fringillidae and Ploceidae should be retained as families while the Emberizinae should be retained as a subfamily of the New World finches. The oldest family group name proposed for the New World finches is apparently Emberizoidea (Susehkin 1925). The name of the family then would be Emberizidae.

The final sequence of the families of Oscine Passeres which emerged from these discussions was submitted to the committee, which agreed with it, except that Prof. Berlioz stated that he still preferred a placement of the Alaudidae near the Emberizidae. The editors of Peters' Checklist still feel that such an arrangement has less to recommend it, for the anatomical reasons stated above. The sequence approved by the committee is as follows:

Sequence of Oscine Families

- Alaudidae
- Hirundinidae
- Motacillidae
- Campephagidae
- Pycnonotidae
- Irenidae
- Laniidae
- Prionopidae
- Vangidae
- Bombycillidae
 - Bombycillinae
 - Ptilogonatinae
 - Dulinae
- Cinclidae
- Troglodytidae
- Mimidae
- Prunellidae
- Muscicapidae
 - Turdinae (incl. Zeledonia)
 - Timaliinae (incl. Chamaea)
 - Paradoxornithinae
 - Poliophtilinae (incl. Rhamphocaenus and Microbates)
 - Sylviinae (incl. Regulus, Leptopoeile, Lophobasileus)
 - Malurinae
 - Muscicapinae
 - Monarchinae
 - Pachycephalinae
- Paridae
- Sittidae
 - Sittinae
 - Hyposittinae
 - Neosittinae
- Certhiidae
- Dicaeidae

Nectariniidae
Zosteropidae
Meliphagidae
Emberizidae
 Emberizinae
 Cardinalinae = Richmondininae
 Tanagrinae = Thraupinae
 Tersininae
 Coerebinae
Parulidae
Drepaniidae
Vireonidae (incl. Vireolanus + Cyclarhis)
Icteridae
Fringillidae
 Fringillinae
 Carduelinae
Estrildidae
Ploceidae
Sturnidae
Oriolidae
Dicuridae
Callaeidae
Grallinidae
Artamidae
Cracticidae
Ptilinorhynchidae
Paradisaeidae
Corvidae

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